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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,535

06/24/2003

Jonathan F. Labs

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09/19/2006

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EXAMINER

JOSEPH, JAISON

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,535

Applicant(s)

LABS ET AL.

Examiner

Jaison Joseph

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 –11 are rejected under 35 U.S.C. 102(e) as being anticipated by Moose et al (US Patent 6,959,050).

Regarding claim 1, Baum et al teach a method for removing a frequency offset between a transmitted signal and a received signal, said frequency offset comprising a fractional portion and an integer portion comprising; estimating said fractional portion of said frequency offset; removing said fractional portion of said frequency offset, whereby only said integer frequency offset remains between said transmitted signal and said received signal (see figure 3, fractional frequency synchronizer 303, and column 2, line 41 – 64), estimating said integer portion of said frequency offset and removing said

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integer portion of said frequency offset, thereby removing said frequency offset between said transmitted signal and said received signal (see figure 3, integer frequency synchronizer 309 and column 2, line 65 – column 3, line 14).

Regarding claim 2, which inherits the limitations of claim 1, Baum et al further teach detecting I and Q for each sub-carrier of said received signal prior to performing said estimating of said integer portion of said frequency offset to provide an I and Q sequence signal (see figure 3, Fourier transformer 307, and column 2, line 41 – 64. Further page 11 of present specification discloses the “determining the I and Q are determined by applying Fast-Fourier Transform on the provided digital signal with cyclic prefix removed.” Baum et al teach (in figure 3, component 307) applying Fast Fourier Transform on a cyclic prefix removed signal. Baum et al further teach transmitted signals are QAM signals (column 2, lines 24 – 40)), further wherein said estimating of said integer portion of said frequency offset is performed by synchronizing said I and Q sequence of known coefficients (see column 8, lines 8 – 37. Baum et al further teach estimating Integer portion of frequency offset by a differential correlation performed between the known symbols and various FFT output symbols which is equivalent to synchronizing I and Q signals with a sequence of known coefficients).

Regarding claim 3, which inherits the limitations of claim 2, Baum et al further teach synchronizing comprises detecting said sequence of known coefficients in said I and Q sequence signal (see column 8, lines 8 – 37).

Regarding claim 4, which inherits the limitations of claim 1, Baum et al further teach removing said fractional portion of said frequency offset is performed by

multiplying said received signal with a phase correlation factor comprising said fractional frequency offset (see column 7, lines 50 – 67).

Regarding claim 5, which inherits the limitations of claim 1, Baum et al further teach wherein said transmitted signal comprises a cyclic prefix, further comprising removing said cyclic prefix in said received signal (see column 2, line 41 – 64).

Regarding claim 6, which inherits the limitations of claim 2, Baum et al further teach said detecting of said I and Q is performed using a discrete Fourier transform (see column 2, line 41 – 64).

Regarding claim 7, the claimed apparatus including the features that correspond to subject matter mentioned above in rejection of claim 1 is applicable hereto.

Regarding claim 8, which inherits the limitations of claim 7, the claimed apparatus including the features that correspond to subject matter mentioned above in rejection of claim 2 is applicable hereto.

Regarding claim 9, which inherits the limitations of claim 8, the claimed apparatus including the features that correspond to subject matter mentioned above in rejection of claim 3 is applicable hereto.

Regarding claim 10, which inherits the limitations of claim 7, the claimed apparatus including the features that correspond to subject matter mentioned above in rejection of claim 4 is applicable hereto.

Regarding claim 11, which inherits the limitations of claim 7, the claimed apparatus including the features that correspond to subject matter mentioned above in rejection of claim 6 is applicable hereto.

Conclusion

Moose et al disclose in US Patent 6,459,745 Frequency timing recovery circuit for orthogonal frequency division multiplexed signals.

Schmidl et al disclose in US Patent 5,732,113 Timing and frequency synchronization of OFDM signals.

Lee disclose in US Patent Application Publication 2004/0208267 Frequency synchronization apparatus and method for OFDM system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Jaison Joseph
09/15/2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER